IN THE CLAIMS

Please cancel claims 30 – 34, and 38 without prejudice or disclaimer of the subject matter claimed therein.

Please amend claims 19, 22, 35, and 37 as follows:

19. A method for identifying compounds that regulate peripheral pathways of energy homeostasis, comprising:

a. contacting a putative regulatory compound with an isolated adipocyte; and,

b. detecting putative regulatory compounds that bind to a melanocortin receptor on said adipocyte, wherein said melanocortin receptor is selected from a group consisting of a MC1-R and a MC3-R receptor, and wherein putative regulatory compounds that bind to said melanocortin receptor on said adipocytes are identified as compounds that regulate body weight by regulating peripheral pathways of energy homeostasis.

22. A method for identifying compounds that preferentially bind to and activate peripheral melanocortin receptors comprising:

a. contacting a putative regulatory compound with a cell which expresses a peripheral melanocortin receptor selected from a group consisting of MC1-R and MC3-R;

b. detecting whether the putative regulatory compound increases activity of said melanocortin receptor;

c. contacting said putative regulatory compound with a cell which expresses a melanocortin 4-receptor (MC4-R); and

d. detecting whether the putative regulatory compound increases MC4-R activity;

wherein putative regulatory compounds that induce greater activity by said peripheral melanocortin receptor as compared to said MC4-R are identified as compounds that preferentially bind to and activate peripheral melanocortin receptors.

35. A method for identifying compounds that increase body weight by regulating peripheral pathways of energy homeostasis, comprising:

a. contacting a cell which expresses a peripheral melanocortin receptor with a MSH or a MSH analog compound which binds to and activates said melanocortin receptor in the presence and absence of a putative regulatory compound;

b. detecting whether said putative regulatory compound inhibits said melanocortin receptor activity;

wherein putative regulatory compounds that inhibit said melanocortin receptor activity are identified as compounds that increase body weight by regulating peripheral pathways of energy homeostasis.